# CLAIMS

1. A driving device for a centrifugal separator, which latter comprises
- a centrifugal rotor (1), which is rotatable about a substantially vertical rotational axis (R),
- a spindle (3), which extends vertically and supports at its one end the centrifugal rotor (1),
- a frame (4), which rotatably supports the spindle (3) during normal operation of the centrifugal rotor (1) by means of a first bearing (6) and a second bearing (5), said first bearing (6) being arranged between the centrifugal rotor (1) and said second bearing (5),
- a driving device (2) having an electric motor (12) , which is arranged to drive the spindle (3) and which comprises a stator (14), which is non-rotatably connected to the frame (4), and a rotor (15), which is supported by the spindle (3) between said two bearings (5, 6),
- a spring device arranged to permit but counteract by spring force, in an area axially between the centrifugal rotor (1) and the electric motor (12), radial movement of the first bearing (6) relative to the frame (4), and
- a bearing support member (7) supported by the frame (4) and arranged to prevent substantial radial movement of said second bearing (5),

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that the stator (14) of the motor is fixed to the frame (4) in a way such that it is radially immovable relative to the same, whereas the rotor (15) of the motor is radially movable relative to the stator (14) together with the spindle (3), a gap (16) between the rotor (15) and the stator (14) of the motor being dimensioned to permit the radial movability of the rotor (15) of the motor.

2. A driving device according to claim 1, in which the centrifugal separator comprises a lubricating device arranged for lubrication of said two bearings (5, 6), wherein

- the lubricating device comprises a generating member (25) for generating an oil mist in an oil chamber (21),
- the first bearing (6) and the second bearing (5) are arranged in a first bearing chamber (11) and a second bearing chamber (17), respectively, which through oil passages (23, 24, 36-38) communicate with said oil chamber (21), and
- said gap (16) between the rotor (15) and the stator (14) of the motor forms a substantial part of a flow path for oil axially through the motor (12).

3. A driving device according to claim 2, in which the lubricating device comprises a fan device (39) arranged to transport oil mist in a circuit comprising said gap (16).

4. A driving device according to claim 3, in which the fan device (39) is connected to the spindle (3) for rotation therewith.

5. A driving device according to claim 4, in which the fan device (39) is arranged between said first bearing chamber (11) and an intermediate chamber (13) communicating with the gap (16), the fan device (39) being arranged to transport oil mist in one of the directions between said first bearing chamber (11) and the intermediate chamber (13).

6. A driving device according to any one of claims 3-5, in which said circuit comprises the gap (16) and at least one further passage (36) connecting said bearing chambers (17, 11) with each other.

7. A driving device according to claim 6, in which said passage (36) is delimited between the outside of the frame (4) and a member (32) connected to the frame (4).

8. A driving device according to claim 6, in which said passage (36) comprises several channels evenly distributed around the spindle (3) and delimited between the frame (4) and said member (32).

9. A driving device according to claim 7 or 8, in which the frame (4) is surrounded by a jacket forming said member (32) and delimiting a space (35) for through flow of a cooling medium in heat transferring contact with the frame (4).

10. A driving device according to claim 9, in which said jacket is double-walled, the inner one of the jacket walls (33) delimiting said channels together with the frame (4).

11. A driving device according to any one of the preceding claims, in which the centrifugal rotor (1) is supported at the upper end of the spindle (3).

12. A driving device according to any one of the preceding claims, in which the first bearing (6) is arranged to take up substantially all axial forces to be transferred between the spindle (3) and the frame (4).

13. A driving device according to claim 1, in which the rotor (15) of the motor at its one end is connected with the spindle (3) in such a way that it is radially immovable in this area relative to the spindle (3) but for the rest is free to move somewhat radially relative to the spindle (3).

14. A driving device according to claim 1, in which the rotor (15) of the motor comprises a first part in the form of a substantial cylindrical sleeve (18), which is connected to the spindle (3), and a second part (19) surrounding the sleeve (18) and connected to its outside.

15. A driving device according to claim 1, in which the rotor (15) of the motor surrounds the spindle (3), a heat-insulating gap (20) being formed between the rotor (15) and the spindle (3) at least along a part of the rotor (15) of the motor.

16. A driving device according to claim 11, in which the frame (4) surrounds a space in which the electric motor (12) and a part of the spindle (3) and also said two bearings (5, 6) are arranged, the frame (4) being formed such that said space is completely closed from connection with the surrounding atmosphere below said first bearing (6).